Station Paper No. 72

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1954

Forest Insect Conditions
In The Northeast — 1953

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United States Department of Agriculture • Forest Service

FOREWORD

Forest insect depredations in the Northeastern States in 1953 generally developed into more serious proportions. Awareness of the current problems was clearly shown in word and action by private timberland owners as well as by the State and Federal agencies charged with the job of protecting the forest resources. This report is a compilation of the survey activities and findings in all States in the Northeast. Grateful acknowledgment is made to the numerous interested persons and agencies who contributed to it.

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Forest Insect Conditions
In The Northeast – 1953

by

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MAJOR FOREST INSECT PESTS

Spruce budworm

The budworm was present in small numbers throughout the entire spruce-fir region of Maine in 1953; but, as in 1952, noticeable defoliation was restricted mostly to two areas--the vicinity of Madawaska Lake and the Fish River Lake-Beavertail Pond area.

The Madawaska Lake infestation, centering in T16 R4, totalled 68,000 acres. Of these, 5,000 were recorded as having heavy defoliation, 20,000 as medium, and 43,000 as light. This was a decrease in acreage from 1952, but there

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was a significant increase in the intensity of attack by the budworm. The egg-mass survey in this area indicated continued high populations in 1954. Medium to high egg-mass deposition throughout the townships north, east, and south of T16 R4 gave clear evidence of dispersion of moths from that center. An airplane spraying operation, covering about 20,000 acres, is to be conducted against the budworm in the Madawaska Lake area in 1954.

The Fish River Lake-Beavertail Pond infestation covered 87,000 acres, all of light intensity, representing a considerable decrease in area and degree of defoliation from 1952. The egg-mass survey here indicated a further decrease in 1954. Two spot infestations showing medium defoliation were found along the Allagash River. In seven biological study areas scattered over northern Aroostook County, natural control factors--particularly parasites--were effective in holding budworm populations at a low level. In contrast, at Madawaska Lake the natural control factors showed no evidence of altering the trend toward higher populations. Moth-trap catches elsewhere in northern Maine indicated possible infiltration of moths from outside areas.

Budworm feeding was negligible in New York, Vermont, and New Hampshire. On the night of July 16 a large flight of moths littered the streets of St. Johnsbury and Lyndonville, Vt. The present endemic budworm populations in Vermont and New Hampshire may increase slightly in 1954.

In Quebec more than 4,300 square miles in the Lower St. Lawrence and Gaspe regions were seriously defoliated. The infestation is expected to move farther eastward next year with serious conditions again in most 1953 infestation areas.

The outbreak in New Brunswick covered a total of 11,000 square miles in 1953, more than double the area reported in 1952. Approximately 1,800,000 acres in the northern part of the Province were sprayed with DDT by airplane. This project, involving 77 spray aircraft, was a cooperative undertaking of four major pulp and paper companies, the Province, and the Federal Government.

Forest tent caterpillar

The extensive outbreak of the forest tent caterpillar, which has developed in New York over the last 3 years, is now menacing valuable hardwood stands in Vermont. In New York nearly 7½ million acres showed signs of defoliation in 1953, an increase of about 4 million acres over the

1952 conditions. Nearby in Vermont thousands of acres of sugar orchards were stripped of foliage. In general this infestation now extends across northern New York and Vermont from Lake Ontario to the Connecticut River. Surveys indicate that it will continue unabated in 1954.

A large number of special-use areas and maple sugar orchards were sprayed with DDT by airplane in New York and Vermont. Further control efforts are planned for both New York and Vermont in 1954.

Gypsy moth

In view of the tremendous recurrent upswing in gypsy moth infestations in New England in 1953, the following statement by H. L. Blaisdell, who is in charge of the Gypsy Moth Control Project, Greenfield, Mass., is of particular interest:

> "Nearly 1½ million acres of forested land in New England were defoliated to some degree by the gypsy moth during the summer of 1953, far exceeding the previous high peak of 821,000 acres in 1945. The heaviest concentration of infestation occurred in western New England in and adjacent to the Connecticut River Valley, extending from near Waterbury in west-central Connecticut northward through Massachusetts into southern New Hampshire and Vermont. Numerous areas of defoliation, ranging from a few to several thousand acres, were also recorded throughout the remainder of the generally infested territory in Massachusetts, Maine, New Hampshire, Vermont, and eastern New York. No defoliation was noted in Rhode Island. A very heavy egg deposition followed the 1953 feeding season, presaging as great or perhaps even greater damage by this insect in 1954 unless controlled by natural factors or by aerial spraying operations."

White pine weevil

In 1951 a system of permanent survey plots was initiated throughout the Northeast to provide information annually on the relative abundance of this destructive pest. The records from these plots provide data on current weevil injury, on the relative importance of the weevil in different parts of the region, and on the over-all trend of infestation.

Table 1.--Summary of white pine weevil attack, 1952-53, based on permanent survey plots

State	Plots	Average weeviling		Range in weeviling in 1953
		1952	1953	
	No.	Per-cent	Per-cent	Per-cent
Maine	22	3	5	0-35
New Hampshire	17	5	3	1-10
Vermont	35	4	5	0-28
Massachusetts	10	13	5	0-40
Connecticut	22	18	15	0-5
New York	100	5	8	0-46
New Jersey	9	4	3	0-8
Pennsylvania	34	--	7	0-44

In 1953 data were recorded on 249 plots throughout New England, New York, New Jersey, and Pennsylvania. It is hoped that similar plots will be established in Delaware, Maryland, and West Virginia during the 1954 season. Table 1 shows a summary by States of the data obtained from these plots in 1952 and 1953.

Matsucoccus scale

This scale insect, first discovered in Connecticut in 1946, has now become a serious threat to red pine in the Northeast. While still confined to a relatively small area in Connecticut and southern New York, it continues to spread; and no effective means of control has yet been developed.

In 1953 a cooperative survey to determine its current distribution was conducted jointly by the States of Connecticut, New York, New Jersey, and New Hampshire, the Blister Rust Control Project, and the Division of Forest Insect Investigations. The scale was found on red pine over an area of approximately 60 square miles in the vicinity of Bridgeport, Conn., and 40 square miles on Long Island, N. Y. In

Westchester County, N. Y., the scale was confined to a few scattered spots along the Hutchinson River Parkway and in the vicinity of Scarsdale and Yonkers. No evidence of the scale was found within the natural red pine belt surveyed in northern New York, Vermont, New Hampshire, and Maine; and it as yet has not been reported from Massachusetts, Rhode Island, or New Jersey, although these latter states contain a considerable area of planted red pine. This insect infests only red pine so far as is known.

Screening tests of a number of insecticides, including systemics, have been conducted, and tests will continue with new formulations. Three materials that have shown the most promise are to be tested intensively in 1954. These are Systox (a systemic poison), ethylene dibromide, and a 2 percent oil emulsion.

Beech scale

The beech scale-Nectria disease continues as a serious threat to the beech stands of the Northeast and possibly the beech trees of the central hardwood forests. The beech stands over much of Maine have suffered heavy mortality, and serious mortality of beech has been occurring on the White Mountain National Forest for the past several years. The present infestations of the scale and Nectria on the eastern slope of the White Mountains and in the Catskill Mountains are slowly progressing westward.

Experiments are now in progress on the White Mountain National Forest to see if the beech scale can be controlled by cutting in such a way as to render conditions in the stand more open and less favorable for the insect.

Balsam woolly aphid

The balsam woolly aphid has been present in the Northeast for nearly a half century and probably ranks second only to the spruce budworm as an enemy of balsam fir. The Canadians report that during the last 25 years this insect has caused more loss to the spruce-fir stands of the Maritime Provinces than any other insect pest. The insect is generally distributed throughout the balsam fir stands of the Northeast and at present appears to be increasing in numbers. Appreciable tree mortality is now occurring on the Green Mountain and White Mountain National Forests. Eight survey plots have been established on each of the two National Forests to follow population trends and to obtain damage appraisal information and other data.

SURVEY PLANS

Under the recent reorganization of the U. S. Department of Agriculture, the Division of Forest Insect Investigations and the Division of Forest Pathology were transferred to the Forest Service, and their field stations throughout the United States were assigned to the regional Forest Experiment Stations. They are now called the Division of Forest Insect Research and the Division of Forest Disease Research, respectively.

The former forest insect and forest pathology stations at New Haven are now under the Northeastern Forest Experiment Station at Upper Darby, Pa. It is anticipated that this new setup will permit closer coordination of forest insect and disease research and surveys with the corresponding phases of the over-all forestry program.

In 1954, as in previous years, the responsibility for the detection and initial reporting of forest-insect depredations will fall largely on the timberland owner or land-managing agency. Alertness in recognizing significant insect damage and in reporting it to the proper State or Federal agencies is the cornerstone of an adequate survey program. Follow-up surveys to determine the extent and severity of infestations and whether or not applied control measures are necessary are the responsibility of the State and Federal forest entomologists. Also, more intensive pre- or post-control surveys require qualified observers to obtain sufficiently reliable data.

The Division of Forest Insect Research will actively assist in the reconnaissance and appraisal phases of the forest insect survey program. Further, it is prepared to serve as a clearing house for information on the current status of both major and minor pests throughout the Northeast. This information, together with data on new and effective control methods, can be of great value in achieving maximim protection against insect losses in all States in the region.

Cooperation in forest insect surveys and in the exchange of information between private, State, and Federal agencies in this region has been outstanding. It is hoped that even closer and more active coordination may be obtained in 1954. Here, as in other forest regions of the country, effective forest protection is a tangible means of increasing and sustaining our timber resources.

CONTROL PLANS

Spruce budworm

Natural control factors have effectively reduced or kept in check the spruce budworm populations in most areas in northern Maine. In the Madawaska Lake area, however, which already has been subjected to several years of medium to heavy feeding, no evidence of effective natural control has been shown and a further increase in the budworm population is indicated.

Moreover, there is a real threat of further spread of the infestation to other valuable stands of fir nearby. To dispel this hazard and to prevent serious damage to the merchantable fir in this area, approximately 20,000 acres in T16 R4 and Westmanland are to be sprayed with DDT by airplane. The control area will be about $4\frac{1}{2}$ by 7 miles, covering the drainages of Johnson, Carry, Black, and McCluskey Brooks. The project will be a cooperative effort of the timberland owners, the State, and the Federal Government.

In New Brunswick further large-scale control operations are to be continued in 1954.

Forest tent caterpillar

Several thousand acres will be sprayed in New York and Vermont in 1954 for protection of sugar maple orchards and areas of recreational value.

Gypsy moth

The following statement by H. L. Blaisdell describes the proposed control work for the gypsy moth in 1954:

> "As a result of the extensive defoliation which occurred in 1953, there has been a concerted demand for state and community action to spray with DDT the heavily infested areas to prevent similar extensive damage in the summer of 1954. On the basis of information now available more than one million acres of this heavily infested territory are scheduled for spraying in May and June of 1954. This work will be largely financed through the pooling of state, city, and town appropriations and contributions by individual property owners, many of whom are combining their financial efforts for community action. The federal

1954 spraying program involves treatment of more than 79,000 acres with a 12 percent DDT oil solution. Of this total more than 72,700 infested acres are located within the Barrier Zone in Connecticut, New York, and Vermont and about 6,300 acres near Scranton, Pa., where spraying will be conducted to eradicate an infestation found as a result of trapping in the summer of 1953."

White pine weevil

Two experimental control blocks of planted white pine near Lowville, N.Y., will be sprayed by airplane in April to test the effectiveness of Heptachlor and Endrin for weevil control. The Heptachlor will be applied over 65 acres at the rate of 1 pound (70% Heptachlor) in 4 gallons of kerosene per acre. The Endrin will be distributed over 38 acres also at the rate of 1 pound in 4 gallons of kerosene per acre. Approximately 25 percent of the white pines in both blocks were weeviled in 1953. This is a cooperative undertaking of the New York Conservation Department and the Division of Forest Insect Research.

Matsucoccus scale

An intensive experimental control program for 1954 has been developed in conjunction with the Bridgeport Hydraulic Company, on whose lands the scale was first found and where nearly 40 acres of red pine have been killed and salvaged as a result of its attack. The company will establish the field plots, and coordinated spray tests will be conducted in April, May, and June. Systox, ethylene dibromide, and a 2 percent oil emulsion will be applied by hydraulic sprayer and mist-blower, and screening tests of several newer insecticides will be conducted on a limited scale.

Table 2.--The forest insect situation in the Northeast, 1953

MAJOR FOREST INSECTS

Insect	Host	Locality of infestation	Extent	Degree of infestation	Recommended control action
Spruce budworm	Balsam fir: red, white, & black spruce	Maine--Aroostook County	155,000 acres	Light-heavy	Airplane spraying with DDT of 20,000 acres near Madawaska Lake.
White pine weevil	White pine & Norway spruce	Regionwide	General distribution	Light-heavy	Knapsack spraying with arsenate of lead in small areas.
Forest tent caterpillar	Sugar maple, poplar, & other hardwoods	N. New York	7,500,000 acres	Medium-heavy	Airplane spraying with DDT of sugar bushes and special-use areas.
		Vermont	Thousands of acres	Light-heavy	
		W-Central Maine	84,000 acres	Medium-heavy	
		Pennsylvania	6,000 acres	Light	
Matsucoccus scale	Red pine	S. Connecticut	Scattered over 60 square miles	Light-heavy (some tree mortality)	Remove infested trees.
		SE. New York, including Long Island	40 square miles (many small areas)	Medium-heavy	

Table 2.-- (continued.)

Insect	Host	Locality of infestation	Extent	Degree of infestation	Recommended control action
European pine shoot moth	Red pine	S. Connecticut	Scattered	Light-heavy	None.
		S. New York	1,000 acres	Light-heavy	
		S. Pennsylvania	16,000 acres	Medium	
		Allegheny Natl. Forest	150 acres	Medium-heavy	
		NE. West Virginia	General distribution	Light-heavy	
Balsam woolly aphid	Balsam fir	Maine-- E. & Central	General distribution	Medium-heavy	Sanitation-salvage cuttings where feasible.
		White Mt. Natl. Forest	70,000 acres	Mostly light (some tree mortality)	
		Green Mt. Natl. Forest	General distribution	Heavy	
Eastern spruce bark beetle	Red spruce	Green Mt. Natl. Forest	Scattered	Light	None.
Pit-making oak scale	Oak, especially chestnut oak	Pennsylvania-- S. & E.	100,000 acres	Light-heavy (decrease in 1953)	None.

Table 2.--(continued.)

Insect	Host	Locality of infestation	Extent	Degree of infestation	Recommended control action
Beech scale	Beech	Maine	General distribution over 80 percent of state	Light-heavy	Sanitation-salvage cuttings where feasible.
		White Mt. Natl. Forest--E. half	200,000 acres	Heavy tree mortality	
		White Mt. Natl. Forest--W. half	200,000 acres	Very little tree mortality	
		SE. New York	6,000 square miles	Light-heavy	
Pine leaf aphid	White pine & red spruce (alternate hosts)	S. Maine, Vermont, N. New York	General distribution	Light-heavy	None.
Redheaded pine sawfly	Red, scotch, & jack pine	New York	100 acres	Light-heavy	Spray with DDT or arsenate of lead.
		Pennsylvania	Scattered in 20,000 acres of plantations	Medium-heavy	
Walkingstick	Oak	S. Pennsylvania	Small scattered infestations	Medium (apparently decreasing	None.
		Maryland	Approximately 50 acres	Decreasing	

Table 2.--(continued.)

Insect	Host	Locality of infestation	Extent	Degree of infestation	Recommended control action
European spruce sawfly	Spruce	Maine-- N. 2/3 of State	General distribution	Light-heavy	None.
Birch leaf miner	Birch	S. Maine, S. New England & New York	General distribution	Medium-heavy	Spray special-use areas with ground equipment using Chlordane or Lindane.
Bronze birch borer & other factors	Yellow birch & white birch	Maine	General distribution	Light (peak of damage past)	Sanitation-salvage cuttings.
		White Mt. Natl. Forest	722,000 acres	Conditions leveling off	
		Green Mt. Natl. Forest	General distribution	Heavy	
Arborvitae leaf miner	Northern white cedar	Central Maine	General distribution	Light	Spray small areas with ground equipment.
		New York— Cortland County	20 acres	Heavy	
Pine sawflies	Red, white, pitch, scotch, jack, mugho, & loblolly pines	Maine to Maryland	Scattered small infestations, none exceeding 100 acres	Light-heavy	Spray with airplane or ground equipment using DDT or lead arsenate.

Table 2.--(continued.)

Insect	Host	Locality of infestation	Extent	Degree of infestation	Recommended control action
Yellow-headed spruce sawfly	Spruce	Maine	General distribution	Light	None.
		New York--Jefferson County	3 acres	Heavy	Spray with lead arsenate.
Bruce's spanworm	Sugar maple & beech	Vermont	Scattered widely in forest stands and sugar orchards	Light-heavy	Spray with DDT using airplanes or ground equipment.
Pales weevil	Pine seedlings	Regionwide	Damage apparent in many areas planted after cutting	Light-heavy	Do not replant until third year after cutting.
Pine spittle bug	Scotch, pitch, white, & jack pines	Pennsylvania	7,000 acres	Light-heavy	Spray by airplane with DDT.
		New York--Steuben & Livingston Counties	100 acres	Light-heavy	
Matsucoccus gallicola	Pitch pine. Less severe on table mountain, shortleaf and Virginia pines.	Pennsylvania	40,000 acres	Light-medium (increasing)	None.

Table 2.--(continued.)

Insect	Host	Locality of infestation	Extent	Degree of infestation	Recommended control action
Saddled prominent	Beech, birch, & sugar maple	New York-- Chautauqua County	100 acres	Light-medium	Spray by airplane with DDT.
Hemlock looper	Eastern hemlock	W. Pennsylvania	500 acres	Medium (decrease since 1951)	Salvage dead trees. Spray by airplane with DDT if necessary.
Orange-striped oakworm	Oak	S-Central Pennsylvania	1,000 acres	Light	None.
Ips beetles	Pine	Pennsylvania	500 acres	Light attacks in scattered areas	None.

Table 3.--The forest insect situation in the Northeast, 1953

MINOR FOREST INSECTS AND SHADE TREE INSECTS

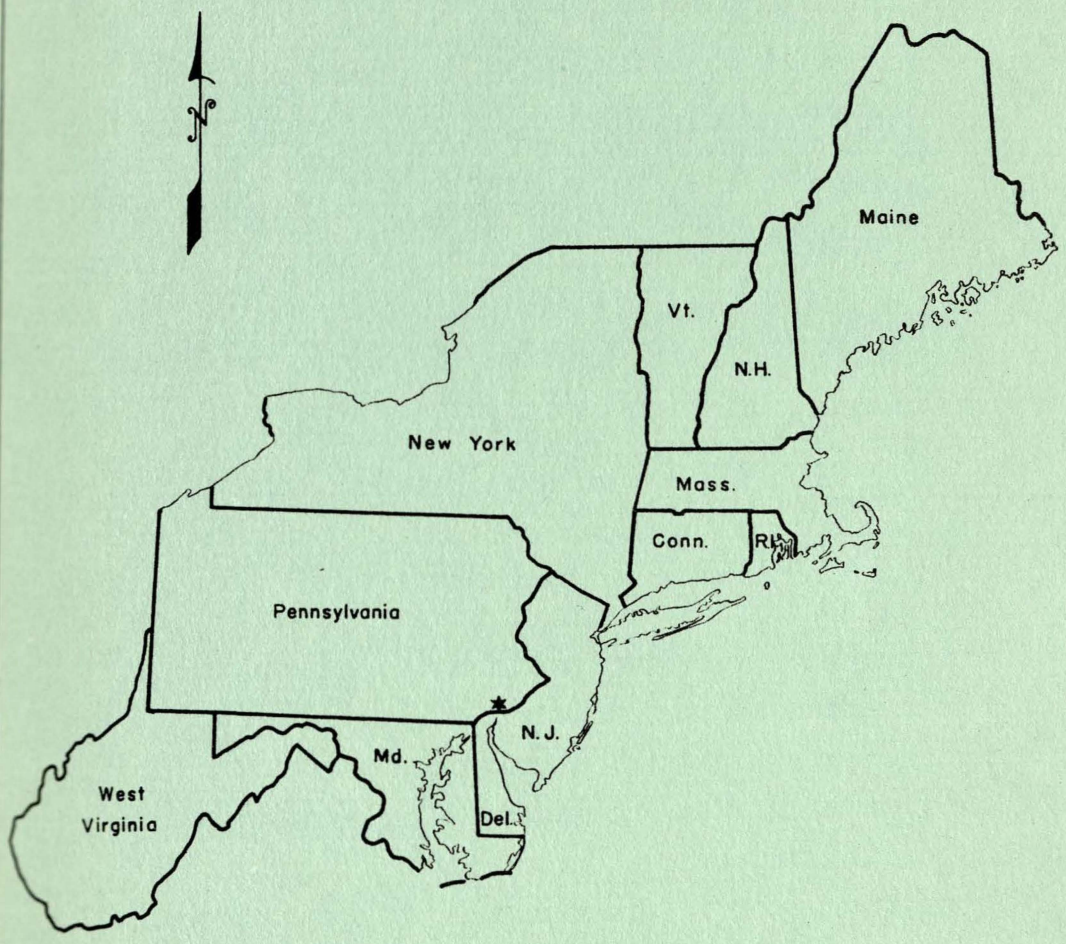
Insect	Host	Locality of infestation	Extent	Recommended control action
Eastern tent caterpillar	Cherry	Regionwide	General	Spray with DDT.
Elm leaf beetle	Elm	All states	General	Spray with DDT or arsenate of lead.
Cankerworms	Oak, elm, & other hardwoods	All states	General	Spray with DDT or arsenate of lead.
Satin moth	Poplar	Maine & Vermont	Scattered shade trees	Spray with DDT or arsenate of lead.
Mountain-ash sawfly	Mountain-ash	Maine--Acadia National Park	General	Spray roadside trees with arsenate of lead.
Spruce gall aphids	Spruce	All states	General	Spray with nicotine sulphate in ornamental plantings.
Linden looper	Basswood & maple	Vermont	Isolated areas	Spray with DDT.
Maple leaf cutter	Sugar maple	Vermont	General	None.

Table 3.--(continued.)

Insect	Host	Locality of infestation	Extent	Recommended control action
Maple trumpet skeletonizer	Sugar maple	Vermont	General	None.
Bagworm	Arborvitae & sycamore	Pennsylvania, West Virginia &Delaware	General	Spray with lead arsenate where feasible.
Locust leaf miner	Black locust	Pennsylvania, West Virginia & Maryland	General	Spray with DDT by mistblower.
Fall webworm	Apple, hickory, cherry & other hardwoods	Pennsylvania, West Virginia & Delaware	Scattered statewide	Remove and destroy nests or spray with lead arsenate.
Oystershell scale	White ash	Pennsylvania	General	Spray with contact insecticide during crawler stage in late spring.
Periodical cicada	Oaks & other hardwoods	Delaware & West Virginia	General	TEPP on orchard and ornamental trees.
Oak mite	Red, pin, & willow oak	Delaware-- New Castle & Kent Counties	General	Spray with wettable sulfur.

Table 3.--(continued.)

Insect	Host	Locality of infestation	Extent	Recommended control action
Yellow-necked caterpillar	Oaks	Delaware-- New Castle & Kent Counties	General	Spray with 50 percent DDT wettable powder.
Sycamore lace bug	Sycamore	Delaware	General	Spray with DDT or Lindane.
Japanese beetle	Elms & other hardwoods	Delaware	General	Spray with DDT.
Mimosa webworm	Honey locust	Delaware	General	Spray with DDT.
Pine bark aphid	White pine	Delaware	General	Spray with nicotine sulfate.



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